

NARUS Solutions for Broadband Cable Access



NARUS Solutions Enable MSOs to:

- Deliver new and differentiated service offerings profitably
- Grow profitably by intelligently managing cable customers, services and business models
- Understand subscriber behavior and usage patterns to become a customer focused organization
- Optimize the success of targeted marketing campaigns
- Conduct policy monitoring to detect and eliminate fraud and abuse
- Derive incremental revenue from Open Access models, ISPs, content providers and enterprise accounts
- Perform efficient capacity planning

NARUS Decision Support Solutions

- ① Open Access
- ② Policy Abuse Detection
- ③ Service and Subscriber Intelligence

NARUS Billing Mediation Solutions

- ① Open Access
- ② Differentiated Services
- ③ SOHO

Delivering on the Broadband Internet Access Promise

Multiple System Operators (MSOs) are delivering the promise of broadband Internet access today. Increasing competition from Local Exchange Carriers (LECs), however, and from emerging high-speed data access providers (such as satellite, fixed wireless, and fiber) is generating significant pressure to grow revenues, reduce expenditures and increase market penetration.

Competition is Changing the Market

The cable marketplace is undergoing significant changes. Open Access initiatives encourage opening up network access infrastructure, while new initiatives such as Packet Cable, Open Cable and DOCSIS v1.1 are rapidly creating a changing landscape. The environment is further complicated by a combination of federal regulations, major consolidations and technology challenges.

In this evolving environment, the best defense for MSOs is to arm themselves with network, service and subscriber intelligence. Until now, they lacked the ability to know exactly what services were being used in their network and how subscribers were using them. NARUS Internet Business Infrastructure (IBI) Solutions provide the intelligence MSOs need to fend off competition.

"We were impressed with NARUS' unique broadband access provider: No other company can offer the same level of service and support."

Powerful Solutions for Broadband Cable Access

NARUS offers two classes of solutions for Broadband Cable Access: Decision Support Solutions and Billing Mediation Solutions.

These solutions are designed to run on the NARUS Business Infrastructure Platform and allow MSOs to:

Reduce Operational Expenses By:

- Identifying and eliminating fraud and abuse
- Optimizing network infrastructure based on knowledge of service utilization

Increase Revenue From Existing Subscribers By:

- Marketing new value-added services that boost revenue per account and retain subscribers
- Implementing flexible billing models, such as: flat + burst, usage, value

Collect Revenue From Additional Sources:

- Third-party ISP wholesale network access
- Premium content providers
- Enhanced services such as IP telephony
- Enterprise accounts (SOHO/SME)

NARUS Decision Support Solutions

NARUS Decision Support Solutions for Broadband Cable Access offer MSOs a unique insight into network, subscriber and service usage intelligence via detailed reporting capabilities by geographical region, over time, or by ISP in an Open Access model. With this timely intelligence information, executives and managers can make the most effective business decisions regarding new service offerings, customer retention programs, acceptable use policies and creative billing schemes.

NARUS Platform Attributes

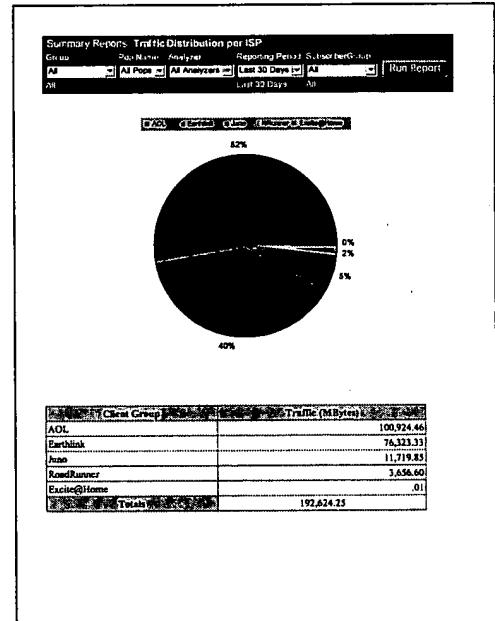
- Distributed network architecture
- Carrier-grade scalability and reliability
- Universal data collection
- Real-time collection
- Full revenue assurance
- Cryptographic IP protection

Open Access

The NARUS Open Access Solution provides the insight and actionable information needed by MSOs to adapt their business models to the new Open Access landscape.

The solution is designed to help MSOs understand the Open Access implications by ISP in terms of:

- Capacity required
- Bandwidth utilized
- Services used
- Quality of Service (QoS) delivered



Report for Open Access

Detailed analytical capabilities on a per ISP basis enable MSOs to:

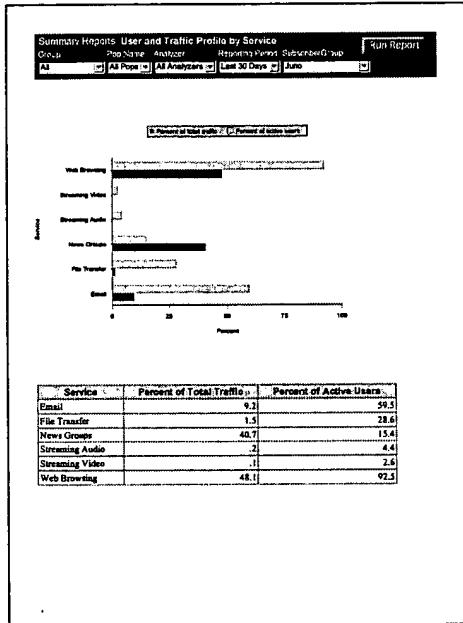
- Accurately report on traffic distribution
- Analyze traffic trends over time
- Report on network quality, service usage, content access and subscriber information

que solutions, and also with their deep understanding of the needs of a company was able to offer this carrier-grade, end-to-end IBI solution."

Juergen Kopelke, Director of Business Development, PRIMACOM

② Service and Subscriber Intelligence

The NARUS Service and Subscriber Intelligence Solution allows MSOs to understand how subscribers are currently using the network. This info aids in the decision of which services should be created and how they should be marketed. This further leads to increased revenues by targeting premier subscribers, marketing the most popular services to existing and potential new subscribers, and promoting new value-add offerings (including tiered service levels and enhanced packaging).



Report for Service and Subscriber Intelligence

This solution will arm MSOs with answers to these questions and a variety of others:

- Which content is most popular?
- What are the top destinations?
- How are premium services being used?
- Which services are more costly?
- What users and segments are utilizing the most bandwidth?

Further analysis available at the subscriber, service, temporal, or geographical level includes:

- User and traffic profile reports
- Usage of premium services such as VoIP or video conferencing
- Content preferences with detailed site statistics
- Traffic volume
- Protocol distribution

③ Policy Abuse Detection

It is common that a small percentage of subscribers are using a high percentage of network resources, resulting in increased operational costs on the shared medium and decreased customer satisfaction due to poor QoS. The NARUS Policy Abuse

Detection Solution provides abuse and fraud detection capabilities which enable MSOs to identify abusers and help decide whether to terminate them or bill them based on resource usage.

By providing answers to important questions, this solution helps MSOs cut down operational costs and reduce churn by improving overall QoS. These questions may include:

- How can my business detect high usage customers that can be potential business accounts?
- How can my business identify home servers?
- How does my business discover DHCP servers per segment?
- How does my business pinpoint spammers?

Summary Report: Top Subscriber Servers by Hits and Traffic					
Client Group	Server IP	Protocol	Port	Hits	Traffic (Mbytes)
AOL	110.184.139.140	POP3	110	1,764,00	7.60
Earthlink	206.252.212.64	HTTP	80	631,00	.91
AOL	130.13.28.141	POP3	110	573,00	.64
AOL	130.51.26.33	TCP	3,101	431,00	1.01
AOL	130.14.74.231	UDP	1,035	330,00	.02
Aussie	198.230.235.90	UDP	1,983	266,00	.01
Excite@Home	156.152.160.39	HTTP	80	244,00	4.35
Excite@Home	156.14.74.231	UDP	1,043	242,00	.01
Earthlink	206.252.217.69	UDP	1,370	202,00	.01
Earthlink	206.165.182.3	UDP	1,043	182,00	.01
AOL	130.230.233.48	UDP	1,043	181,00	.01
RoadRunner	187.219.18.225	UDP	1,043	179,00	.01
AOL	130.199.82.225	UDP	1,043	178,00	.01
Earthlink	206.62.118.56	UDP	1,043	177,00	.01
Excite@Home	156.144.247.85	HTTP	80	176,00	.01
AOL	130.79.340.13	UDP	1,043	172,00	.01
AOL	130.31.5.211.2	UDP	1,043	171,00	.01
AOL	130.11.1.511.2	UDP	1,043	170,00	.01
Earthlink	206.250.234.92	UDP	1,043	169,00	.01
Aussie	198.231.19.10	UDP	1,043	168,00	.01
Earthlink	206.14.74.231	UDP	1,043	167,00	.01
Aussie	198.231.1.24	UDP	1,043	166,00	.01
Aussie	198.45.14.25	HTTP	80	165,00	.01
RoadRunner	187.219.1.12	UDP	1,043	164,00	.01
Earthlink	206.61.128.123	POP3	110	163,00	.01
AOL	130.222.97.82	UDP	1,043	162,00	.01
AOL	130.132.42.89	TCP	1,043	161,00	.01
Excite@Home	156.196.128.1	UDP	1,043	160,00	.01
RoadRunner	187.211.4.5	UDP	1,043	159,00	.01
Earthlink	206.132.79.21	HTTP	80	158,00	.01
Totals					742.48

Reports for Policy Abuse Detection

STATEMENT			
Service	Date	Description	Charge
Address	04/23	Monthly Access Charge	4.95
Phone	04/23	Local call (159) 12341, 20 min, 0.925 min, 21.100 min, 22.53 44.531	6.40
Total Correspondence -	04/01	IP123 14412123, Del-Hip, VoiceIP4P4, 20100, 21 min	1.00
E-mail	04/02	Message(s) 17	0.00
Standard	04/02	14412123, Del-Hip, VoiceIP4P4, 20100, 21 min	3.00
Application Testing	04/01	Java Form Automation, Del-Hip, VoiceIP4P4, 20100	3.00
Program Errors	04/01	Java Form Automation, Del-Hip, VoiceIP4P4, 20100	3.00
Program Errors	04/02	Java Form Automation, Del-Hip, VoiceIP4P4, 20100	3.00
Java Application	04/15	Java Form Automation, Del-Hip, VoiceIP4P4, 20100	4.00
Java Application	04/15	Perl-Del 21, 20 sec	4.00

NARUS Billing Mediation Solutions

MSOs no longer need to rely on custom solutions or attempt to use network management tools to capture and process IP usage data for billing. NARUS Billing Mediation Solutions for Broadband Cable Access are flexible, off-the-self solutions for rapidly defining and developing value-based billing plans for differentiated IP service models. Better-targeted billing plans translate directly into better retention, higher revenues and improved profitability. With universal data collection capabilities, NARUS sets a new standard for IP billing mediation performance and scalability with guaranteed revenue assurance. Full programmability of the mediation business rules combined with standards-based Internet Protocol Detail Record (IPDR) support allow for complete and easy integration with leading billing systems such as Portal, Convergys/Geneva, Amdocs/Solect, Digiquant and others, including in-house legacy systems.

• Open Access

The NARUS Open Access Solution enables MSOs to monetize their network infrastructure and capitalize on new revenue opportunities by developing and deploying wholesale value-based billing plans based on bandwidth usage per protocol and QoS delivered. Billing Mediation

Powering the Service-Driven Business

In this incredibly dynamic world where technology is continuously creating new opportunities, MSOs must have the capability to create business models that can profitably deliver value. Creating valuable services requires a business infrastructure that provides complete visibility into customers' behavior and preferences in real time. With this capability, MSOs can recognize trends ahead of their competitors, and have the means to deploy new services and applications that take advantage of these opportunities immediately.

NARUS IBI Solutions provide the tools necessary to respond to a rapidly changing market—to satisfy customers and improve the bottom line.

To learn more about NARUS solutions and services, visit the NARUS Web site at <http://www.narus.com>.

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